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Electrochemical amination of benzene in aqueous solutions of sulfuric acid and an organic solvent

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Abstract

Electrolysis of the Ti(IV)-NH2OH-C6H6 system in 11 M H2SO4 reveals that out of four organic solvents - methanol, formic acid, acetonitrile, and acetic acid - only the last two meet conditions imposed on solvents to be used in indirect cathodic amination of aromatic compounds. They improve the aromatic substrate solubility in the catholyte and affect the process mechanism, determining, together with other factors, the substitution's rate and selectivity.

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Keywords

Electrochemical amination, Hydroxylamine, Radical amine, Radical aromatic substitution